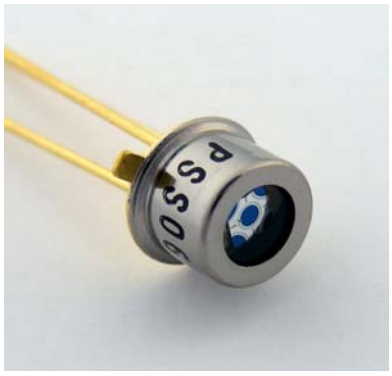
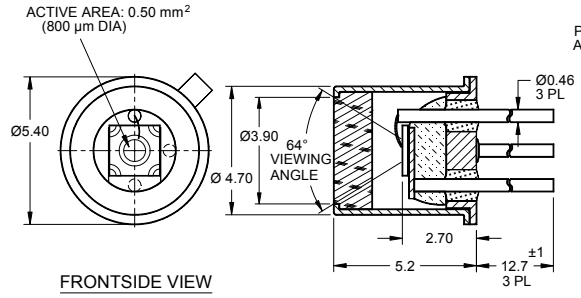
PACIFIC SILICON SENSOR Incorporated

Pacific Silicon Sensor Series 11 Data Sheet

Part Description AD800-11-TO52-S1

Order # 06-112





FEATURES

- ∅ 800 µm active area
- Blue enhanced
- High QE at blue range
- Fast rise time

DESCRIPTION

0.50 mm^2 High Speed, High Gain, Blue Enhanced Avalanche Photodiode with P on N construction. Hermetically packaged in a case isolated TO-52-S1 with a UV transmitting clear glass window cap.

APPLICATIONS

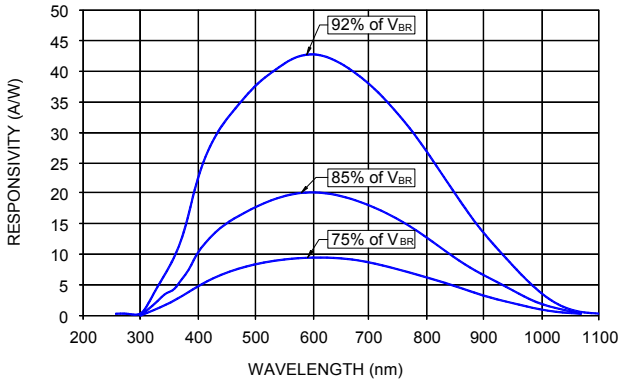
- Analytical equipment
- Scintillation
- Medical equipment
- High speed photometry

RoHS COMPLIANT

ABSOLUTE MAXIMUM RATING

SYMBOL	PARAMETER	MIN	MAX	UNITS
T_{STG}	Storage Temp	-55	+125	°C
T_{OP}	Operating Temp	-40	+85	°C
$T_{SOLDERING}$	Soldering Temp 10 seconds		+260	°C
	Electrical Power Dissipation @ 22°C	-	100	mW
	Optical Peak Value, once for 1 second	-	200	mW
I_{PH} (DC)	Continuous Optical Operation ≤ 1 mA for signal 50 µs "on" / 1 ms "off"	-	250	µA

SPECTRAL RESPONSE M=100



ELECTRO-OPTICAL CHARACTERISTICS @ 23 °C

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_D	Dark Current	M = 100	---	1.0	5.0	nA
C	Capacitance	M = 100	---	2.5	---	pF
V_{BR}	Breakdown Voltage	I_D = 2 µA	100	200	---	V
	Temperature Coefficient of V_{BR}		---	0.88	---	V/K
	Responsivity	M = 100; λ = 400 nm	---	25	---	A/W
		M = 100; λ = 500 nm	---	35	---	
		M = 100; λ = 600 nm	---	40	---	
Δf_{3dB}	Bandwidth	-3dB	---	175	---	MHz
t_r	Rise Time	λ = 410 nm; R_L = 50 Ω	---	1	---	ns
	Optimum Gain		50	---	80	
	Noise Current	M = 100	---	0.25	---	pA/Hz$^{1/2}$
	Max Gain		200	500	---	
NEP	Noise Equivalent Power	M = 100; λ = 410 nm	---	1.0 X 10^{-14}	---	W/Hz$^{1/2}$

Disclaimer: Due to our policy of continued development, specifications are subject to change without notice.

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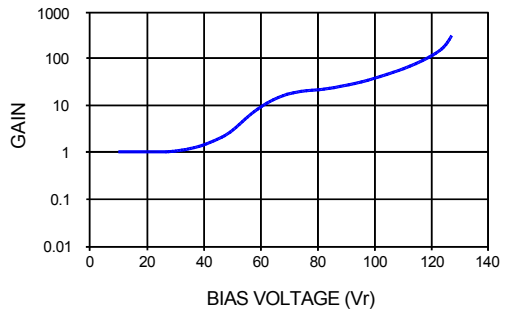
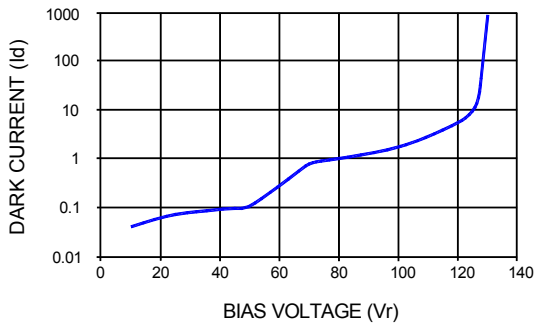
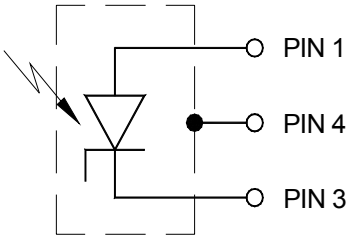
TYPICAL GAIN vs BIAS VOLTAGE



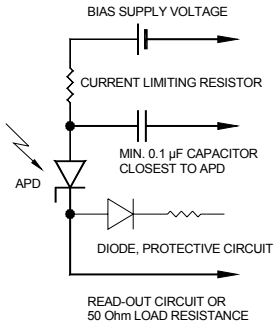
TYPICAL DARK CURRENT vs BIAS VOLTAGE



DEVICE SCHEMATIC



SUGGESTED CIRCUIT SCHEMATIC



APPLICATION NOTES

- Current should be limited by a protecting resistor or current limiting IC inside the power supply.
- Use of low noise read-out IC.
- For high gain applications (M>50) bias voltage should be temperature compensated.
- For low light level applications, blocking of ambient light should be used.

HANDLING PRECAUTIONS:

- Soldering temperature - 260°C for 10 seconds max. The device must be protected against solder flux vapor.
- Minimum pin length - 2 mm
- ESD protection - Standard precautionary measures are sufficient.
- Storage - Store devices in conductive foam.
- Avoid skin contact with window.
- Clean window with Ethyl alcohol if necessary.
- Do not scratch or abrade window.

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